NEUROSCIENCE

An International Journal under the editorial direction of IBRO

Volume 44, 1991

TITLE SECTION
LIST OF CONTENTS
AND AUTHOR INDEX

PERGAMON PRESS
OXFORD · NEW YORK · SEOUL · TOKYO

NEUROSCIENCE

Chief Editors

P. G. KOSTYUK: *Department of General Physiology, A. A. Bogomoletz Institute of Physiology, Academy of Sciences, Ukrainian SSR, 4 Bogomoletz Street, Kiev 24, 252601 GSP, U.S.S.R.*

R. LLINÁS: *Department of Physiology and Biophysics, New York University School of Medicine, 550 First Avenue, New York 10016, U.S.A.*

A. D. SMITH: *Department of Pharmacology, University of Oxford, Mansfield Road, Oxford OX1 3QT, U.K.*

Editorial Board

R. G. BAKER (*New York, NY*)
P. BANKS (*Sheffield*)
K. J. BERKLEY (*Tallahassee, FL*)
A. BJÖRKLUND (*Lund*)
J. P. BOLAM (*Oxford*)
P. BRODAL (*Oslo*)
A. G. BROWN (*Edinburgh*)
G. TEN BRUGGENCATE (*Munich*)
J. BUREŠ (*Prague*)
R. E. BURKE (*Bethesda, MD*)
G. BUZSÁKI (*Newark, NJ*)
A. L. BYSOV (*Moscow*)
F. CLEMENTI (*Milan*)
B. COLLIER (*Montreal*)
A. CONSTANTI (*London*)
M. COSTA (*Adelaide*)
A. C. CUELLO (*Montreal*)
W. J. DAVIS (*Santa Cruz, CA*)
A. C. DOLPHIN (*London*)
I. M. L. DONALDSON (*Edinburgh*)
D. EDGAR (*Liverpool*)
C. EDWARDS (*Tampa, FL*)
M. M. ESIRI (*Oxford*)
R. H. EVANS (*Bristol*)
D. S. FABER (*Buffalo, NY*)
D. M. FAMBROUGH (*Baltimore, MD*)
V. V. FANARDJIAN (*Yerevan*)
R. L. M. FAULL (*Auckland*)
T. F. FREUND (*Budapest*)
G. GABELLA (*London*)
W. F. GANONG (*San Francisco, CA*)
H. M. GERSCHENFELD (*Paris*)
J. GLOWINSKI (*Paris*)
J. A. GRAY (*London*)
A. M. GRAYBIEL (*Cambridge, MA*)
R. W. GUILLERY (*Oxford*)
G. HAEUSLER (*Darmstadt*)
J. HÁMORI (*Budapest*)
L. HEIMER (*Charlottesville, VA*)
M. HERKENHAM (*Bethesda, MD*)
D. E. HILLMAN (*New York, NY*)
T. HÖKFELT (*Stockholm*)
E. HOLTZMAN (*New York, NY*)
P. HOLZER (*Graz*)
O. HORNYKIEWICZ (*Vienna*)
J. HOUNSGAARD (*Copenhagen*)
S. P. HUNT (*Cambridge*)
M. ITO (*Saitama*)
H. JAHNSEN (*Copenhagen*)
G. JAIM-ETCHEVERRY (*Buenos Aires*)
B. E. JONES (*Montreal*)
G. JU (*Xi'an*)
J. S. KELLY (*Edinburgh*)
B. I. KHODOROV (*Moscow*)
G. W. KREUTZBERG (*Munich*)
O. A. KRISHTAL (*Kiev*)
K. KRNJEVIĆ (*Montreal*)
L. MAFFEI (*Pisa*)
C. A. MARSDEN (*Nottingham*)
M. R. MATTHEWS (*Oxford*)
P. B. C. MATTHEWS (*Oxford*)
A. I. MATUS (*Basle*)
R. E. MCCAMAN (*Duarte, CA*)
R. Y. MOORE (*Pittsburgh, PA*)
D. K. MOREST (*Farmington, CT*)
I. G. MORGAN (*Canberra*)
J. F. MORRIS (*Oxford*)
É. MUGNAINI (*Storrs, CT*)
W. J. H. NAUTA (*Cambridge, MA*)
F. ORREGO (*Santiago*)
J. M. PALACIOS (*Basle*)
S. L. PALAY (*Concord, MA*)
R. E. PASSINGHAM (*Oxford*)
V. H. PERRY (*Oxford*)
J. M. POLAK (*London*)
P. RAKIC (*New Haven, CA*)
H. J. RALSTON (*San Francisco, CA*)
T. S. REESE (*Bethesda, MD*)
F. REINOSO-SUÁREZ (*Madrid*)
M. RÉTHELYI (*Budapest*)
P. N. RUDOMIN (*Mexico*)
M. L. SHELANSKI (*New York, NY*)
S. M. SHERMAN (*Stony Brook, NY*)
M. L. SHIK (*Moscow*)
M. V. SOFRONIEW (*Cambridge*)
P. SOMOGYI (*Oxford*)
C. SOTELO (*Paris*)
K. STARKE (*Freiburg*)
M. S. STARR (*London*)
M. STERIADE (*Québec*)
C. F. STEVENS (*La Jolla, CA*)
L. STJÄRNE (*Stockholm*)
C. STUMPF (*Vienna*)
K. SUZUKI (*Chapel Hill, NC*)
R. F. THOMPSON (*Irvine, CA*)
A. M. THOMSON (*London*)
E. S. VIZI (*Budapest*)
J. VOOGD (*Rotterdam*)
L. VYKLICKY (*Prague*)
X. S. T. WAN (*Beijing*)
R. WERMAN (*Jerusalem*)
W. D. WILLIS (*Galveston, TX*)
H. WINKLER (*Innsbruck*)
L. R. YOUNG (*Cambridge, MA*)
S. ZEKI (*London*)
H. ZIMMERMANN (*Frankfurt*)

IBRO Publications Committee

Chairman, A. D. SMITH; R. LLINÁS, D. G. R. OTTOSON, D. P. PURPURA, P. G. STRATA.

Aims and Scope:

Neuroscience publishes papers describing the results of original research on any aspect of the scientific study of the nervous system. Since one of the chief aims of the Journal is to promote communication between neuroscientists, the type of paper most suitable for publication is that in which new observations are clearly and succinctly reported and in which the purpose of the study is made meaningful to scientists of other disciplines. Any paper, however short, will be considered for publication provided that it reports significant, new and carefully confirmed findings with full experimental details. For *Instructions to Authors* see Vol. 40, No. 1, pp. iii–v.

Production Editor: A. P. CULLIS. *Editorial Assistants*: S. J. RUSSELL, S. A. WILLIAMS.

Copyright © 1991 IBRO
For Copyright details see Back Cover

LIST OF CONTENTS

VOLUME 44 NUMBER 1 — 1991

A. J. McDonald	Organization of amygdaloid projections to the prefrontal cortex and associated striatum in the rat	1
A. J. McDonald	Topographical organization of amygdaloid projections to the caudatoputamen, nucleus accumbens, and related striatal-like areas of the rat brain	15
S. J. Augood, H. Kiyama, R. L. M. Faull and **P. C. Emson**	Dopaminergic D_1 and D_2 receptor antagonists decrease prosomatostatin mRNA expression in rat striatum	35
Y. Smith and **J. P. Bolam**	Convergence of synaptic inputs from the striatum and the globus pallidus onto identified nigrocollicular cells in the rat: a double anterograde labelling study	45
L. Rioux, D. P. Gaudin, C. Gagnon, T. Di Paolo and **P. J. Bédard**	Decrease of behavioral and biochemical denervation supersensitivity of rat striatum by nigral transplants	75
J. A. Valentijn, E. Louiset, H. Vaudry and **L. Cazin**	Dopamine regulates the electrical activity of frog melanotrophs through a G protein-mediated mechanism	85
V. Dimitriadou, M. G. Buzzi, M. A. Moskowitz and **T. C. Theoharides**	Trigeminal sensory fiber stimulation induces morphological changes reflecting secretion in rat dura mater mast cells	97
R. P. Yezierski and **C. M. Mendez**	Spinal distribution and collateral projections of rat spinomesencephalic tract cells	113
Y. O. Taiwo and **J. D. Levine**	Further confirmation of the role of adenyl cyclase and of cAMP-dependent protein kinase in primary afferent hyperalgesia	131
S. R. McGurk, E. D. Levin and **L. L. Butcher**	Impairment of radial-arm maze performance in rats following lesions involving the cholinergic medial pathway: reversal by arecoline and differential effects of muscarinic and nicotinic antagonists	137
Z. Henderson	Sprouting of cholinergic axons does not occur in the cerebral cortex after nucleus basalis lesions	149
J. F. M. van Brederode, M. K. Helliesen and **A. E. Hendrickson**	Distribution of the calcium-binding proteins parvalbumin and calbindin-D28k in the sensorimotor cortex of the rat	157
P. A. Lapchak, D. M. Araujo, R. Quirion and **A. Beaudet**	Immunoautoradiographic localization of interleukin 2-like immunoreactivity and interleukin 2 receptors (Tac antigen-like immunoreactivity) in the rat brain	173
K. Kitahama, R. M. Denney, T. Maeda and **M. Jouvet**	Distribution of type B monoamine oxidase immunoreactivity in the cat brain with reference to enzyme histochemistry	185
I. van der Ploeg, A. Cintra, N. Altiok, P. Askelöf, K. Fuxe and **B. B. Fredholm**	Limited distribution of pertussis toxin in rat brain after injection into the lateral cerebral ventricles	205
T. L. Yue, P. Nambi, H. L. Wu and **G. Feuerstein**	Endothelin receptor binding and cellular signal transduction in neurohybrid NG108-15 cells	215

K. Valentijn, D. Tranchand Bunel, N. Liao, G. Pelletier and **H. Vaudry**	Release of pro-thyrotropin-releasing hormone connecting peptides Ps4 and Ps5 from perifused rat hypothalamic slices	223
J. J. Miguel-Hidalgo, E. Senba, K. Takatsuji and **M. Tohyama**	Effects of eye-enucleation on substance P-immunoreactive fibers of some retinorecipient nuclei of the rat in relation to their origin from the superior colliculus	235
K. Barnes, A. Bourne, P. A. Cook, A. J. Turner and **A. J. Kenny**	Membrane peptidases in the peripheral nervous system of the pig: their localization by immunohistochemistry at light and electron microscopic levels	245

VOLUME 44 NUMBER 2 1991

Y. Yarom	Rhythmogenesis in a hybrid system—interconnecting an olivary neuron to an analog network of coupled oscillators	263
S. A. Eaton and **T. E. Salt**	Membrane and action potential responses evoked by excitatory amino acids acting at *N*-methyl-D-aspartate receptors and non-*N*-methyl-D-aspartate receptors in the rat thalamus *in vivo*	277
G. W. Huntley and **E. G. Jones**	The emergence of architectonic field structure and areal borders in developing monkey sensorimotor cortex	287
Z. Henderson	Early development of the nucleus basalis–cortical projection but late expression of its cholinergic function	311
C. W. Picanço-Diniz, L. C. L. Silveira, M. S. P. de Carvalho and **E. Oswaldo-Cruz**	Contralateral visual field representation in area 17 of the cerebral cortex of the agouti: a comparison between the cortical magnification factor and retinal ganglion cell distribution	325
T. Tsuda, K. Kogure, K. Nishioka and **T. Watanabe**	Mg^{2+} administered up to twenty-four hours following reperfusion prevents ischemic damage of the CA1 neurons in the rat hippocampus	335
S. M. Strain and **R. A. R. Tasker**	Hippocampal damage produced by systemic injections of domoic acid in mice	343
T. C. Pellmar, G. E. Hollinden and **J. M. Sarvey**	Free radicals accelerate the decay of long-term potentiation in field CA1 of guinea-pig hippocampus	353
J. C. Leahy and **M. L. Vallano**	Differential effects of isoquinolinesulfonamide protein kinase inhibitors on CA1 responses in hippocampal slices	361
J. M. Lawrence, G. Raisman, R. Mirsky and **K. R. Jessen**	Transplantation of postnatal rat enteric ganglia into denervated adult rat hippocampus	371
L. C. Doering, M. Eriksdotter-Nilsson and **L. Olson**	Spatial distributions of cytoskeletal proteins and the nerve growth factor receptor in septal transplants *in oculo*: protection from abnormal immunoreactivity by hippocampal co-grafts	381
R. Takemura, Y. Kanai and **N. Hirokawa**	*In situ* localization of tau mRNA in developing rat brain	393
N. Aronin, K. Chase, S. M. Sagar, F. R. Sharp and **M. DiFiglia**	*N*-Methyl-D-aspartate receptor activation in the neostriatum increases c-fos and fos-related antigens selectively in medium-sized neurons	409

J. S. Schneider and **D. S. Rothblat**	Neurochemical evaluation of the striatum in symptomatic and recovered MPTP-treated cats	421
W. P. J. M. Spooren, J. G. Veening, H. J. Groenewegen and **A. R. Cools**	Efferent connections of the striatopallidal and amygdaloid components of the substantia innominata in the cat: projections to the nucleus accumbens and caudate nucleus	431
G. A. Bishop	Physiological interactions between enkephalin and excitatory amino acids in the cerebellar cortex of the opossum *Didelphis marsupialis virginiana*	449
S. Nakamura, T. Kawamata, O. Yasuhara, I. Akiguchi, J. Kimura, H. Kimura and **T. Kimura**	The histochemical demonstration of monoamine oxidase-containing neurons in the human hypothalamus	457
M. S. Airaksinen, A. Paetau, L. Paljärvi, K. Reinikainen, P. Riekkinen, R. Suomalainen and **P. Panula**	Histamine neurons in human hypothalamus: anatomy in normal and Alzheimer diseased brains	465
X.-J. Xu, C. A. Maggi and **Z. Wiesenfeld-Hallin**	On the role of NK-2 tachykinin receptors in the mediation of spinal reflex excitability in the rat	483
N. Ludvig, V. Burmeister, P. C. Jobe and **R. L. Kincaid**	Electron microscopic immunocytochemical evidence that the calmodulin-dependent cyclic nucleotide phosphodiesterase is localized predominantly at postsynaptic sites in the rat brain	491
D. R. Gehlert, S. L. Gackenheimer and **D. A. Schober**	Autoradiographic localization of subtypes of angiotensin II antagonist binding in the rat brain	501
A. Irintchev, J. Carmody and **A. Wernig**	Effects on recovery of soleus and extensor digitorum longus muscles of prolonged wheel running during a period of repeated nerve damage	515

VOLUME 44 NUMBER 3 1991

COMMENTARY

R. R. Llinás and **D. Paré**	Of dreaming and wakefulness	521

RESEARCH PAPERS

M. A. Wilson and **M. E. Molliver**	The organization of serotonergic projections to cerebral cortex in primates: regional distribution of axon terminals	537
M. A. Wilson and **M. E. Molliver**	The organization of serotonergic projections to cerebral cortex in primates: retrograde transport studies	555
T. D. White, A. M. Tan and **D. M. Finch**	Functional connections of the rat medial cortex and basal forebrain: an *in vivo* intracellular study	571
I. Nalepa and **J. Vetulani**	Involvement of protein kinase C in the mechanism of *in vitro* effects of imipramine on generation of second messengers by noradrenaline in cerebral cortical slices of the rat	585
Ch. Pifl, G. Schingnitz and **O. Hornykiewicz**	Effect of 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine on the regional distribution of brain monoamines in the rhesus monkey	591

T. Mizuno, Y. Endo, J. Arita and F. Kimura	Acetylcholine release in the rat hippocampus as measured by the microdialysis method correlates with motor activity and exhibits a diurnal variation	607
K. Unsicker, K. C. Flanders, D. S. Cissel, R. Lafyatis and M. B. Sporn	Transforming growth factor beta isoforms in the adult rat central and peripheral nervous system	613
T. G. Willmott, C. P. Selkirk, R. B. Hawkes, E. Philippe, P. R. Gordon-Weeks and P. W. Beesley	PAC 1: an epitope associated with two novel glycoprotein components of isolated postsynaptic densities and a novel cytoskeleton-associated polypeptide	627
I. Merchenthaler	The hypophysiotropic galanin system of the rat brain	643
I. Merchenthaler	Neurons with access to the general circulation in the central nervous system of the rat: a retrograde tracing study with Fluoro-Gold	655
S. E. Dryer, M. M. Dourado and M. E. Wisgirda	Properties of Ca^{2+} currents in acutely dissociated neurons of the chick ciliary ganglion: inhibition by somatostatin-14 and somatostatin-28	663
L. Stjärne, E. Stjärne, M. Msghina and J.-X. Bao	K^+ and Ca^{2+} channel blockers may enhance or depress sympathetic transmitter release via a Ca^{2+}-dependent mechanism "upstream" of the release site	673
Z. Bing, L. Villanueva and D. Le Bars	Acupuncture-evoked responses of subnucleus reticularis dorsalis neurons in the rat medulla	693
A. Pertovaara, T. Kauppila, E. Jyväsjärvi and E. Kalso	Involvement of supraspinal and spinal segmental alpha-2-adrenergic mechanisms in the medetomidine-induced antinociception	705
X.-M. Yu, M. Hua and S. Mense	The effects of intracerebroventricular injection of naloxone, phentolamine and methysergide on the transmission of nociceptive signals in rat dorsal horn neurons with convergent cutaneous–deep input	715
E. Collin, A. Mauborgne, S. Bourgoin, D. Chantrel, M. Hamon and F. Cesselin	*In vivo* tonic inhibition of spinal substance P (-like material) release by endogenous opioid(s) acting at δ receptors	725
A. W. Duggan, P. J. Hope and C. W. Lang	Microinjection of neuropeptide Y into the superficial dorsal horn reduces stimulus-evoked release of immunoreactive substance P in the anaesthetized cat	733
A. J. Todd	Immunohistochemical evidence that acetylcholine and glycine exist in different populations of GABAergic neurons in lamina III of rat spinal dorsal horn	741
E. L. Hill, R. Turner and R. Elde	Effects of neonatal sympathectomy and capsaicin treatment on bone remodeling in rats	747
M. Takata, N. Tomomune and S. Tomioka	Synaptic efficacy of inhibitory synapses in the reinnervating hypoglossal motoneurons	757
L. Rinaman, C. E. Milligan and P. Levitt	Persistence of Fluoro-Gold following degeneration of labeled motoneurons is due to phagocytosis by microglia and macrophages	765